

NASA PHYSIOLOGICAL TRAINING

WHAT IS IT?

Physiological training is a program directed toward understanding and surviving in the flight environment. It covers the problems of both high and low altitudes and recommends procedures to prevent or minimize human factor errors that occur in flight.

WHO NEEDS IT?

The course is primarily of benefit to pilots. It is also recommended for the other aircrew personnel, Air Traffic Controllers, Aviation Medical Examiners, and other personnel from the national airspace system. For WINGS Program participants, this training fulfills the "Safety Seminar" requirement for the WINGS award.

WHERE CAN YOU GET IT?

A resident physiological training course at the NASA-Sonny Carter Training Facility in Clear Lake (Houston), Texas, is available through the FAA Safety Program Manager, Flight Standards District Office in Houston, Texas.

Applicants should not contact NASA for training schedules on an individual basis as training dates and schedules are obtained and coordinated by the FAA Safety Program Manager at the Houston Flight Standards District Office. Each applicant will receive reporting instructions approximately 3 weeks prior to the scheduled training date. Further, since applications are approved on an individual basis, substitutions are not permitted.

WHAT IS CONTAINED IN THE COURSE?

The course consists of a "ground school" phase in addition to time in the altitude chamber. Applicants may attend the "ground school" phase only and receive course completion credit (see "Basic Requirements," below). The many topics covered in this one-day course include the environment to which the flyer is exposed, physiological functions of the body at ground level, and alteration of some of these functions by changes in the environment.

The higher one flies, the more critical the need for supplemental oxygen becomes. This need is discussed so that the trainee will understand why a pilot cannot fly safely at altitudes in excess of 12,500 feet for a prolonged period without some aid, either supplemental oxygen or a pressurized aircraft. Both oxygen equipment and pressurization are discussed. When humans are confronted with certain stressful situations, there is a tendency to breathe too rapidly. This topic (hyperventilation) and methods of control are discussed. Ear pain on descent and other problems with gases and procedures to prevent or minimize gas problems are explained. Alcohol, tobacco, and drugs are also discussed as they apply to flying. Pilot vertigo is discussed and demonstrated so that the trainee will understand why a VFR pilot or a noncurrent instrument pilot should never attempt to fly in clouds or other weather situations where visibility is reduced. The training includes an altitude chamber flight where the trainees experience individual symptoms of oxygen deficiency as well as decompression. This flight will demonstrate that:

1. Proper oxygen equipment and its use will protect you from oxygen deficiency.
2. You can experience and recognize symptoms that will be the same as those found in actual flight and therefore take the necessary action to prevent loss of judgment and consciousness.
3. Decompression is not dangerous provided proper supervision is present, and proper action are planned and taken when necessary.

WHAT ARE THE BASIC REQUIREMENTS?

Approval for applicants in the altitude chamber flight portion of the physiological training course is subject to the following considerations:

1. The applicant **MUST HOLD A VALID FAA MEDICAL CERTIFICATE AND PROVIDE A COPY OF FAA FORM 8500-8 (Front and back pages) APPLICATION FOR AIRMEN MEDICAL CERTIFICATE** or, alternatively, acceptable proof of a military flight medical examination, **not more than 12 months old**. **Even though it may be an FAA physical, you must meet NASA standards.**
2. Applicants must meet the same BMI requirements required of NASA trainees. NASA BMI requirements are specified on the bottom of this page. Applicants not meeting these requirements may still attend the ground school phase of the training and receive credit for the course.
3. Applicants **EKG**: Required initially at age 35 and older, annually after age 40.

4. The applicant must be free from colds or allergies and have no affliction that could be aggravated by atmospheric pressure changes.
5. The applicant must not have participated in SCUBA diving activities within 24 hours preceding physiological training.
6. An applicant with a beard will not be permitted to participate in the chamber flight.
7. All applicants must be U.S. Citizens.

FOR FURTHER INFORMATION: Contact the Houston Flight Standards District Office, Safety Program Manager, at (281) 929-7000.

The submission of this application information is authorized by the Federal Aviation Act of 1958 (49 U.S.C. 1301 et. seq.). It is necessary to establish qualifications of eligibility to receive physiological training and will be used as proper evidence of training. Failure to provide this information will result in the denial of your request for training.

BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Height (inches)	Weight (pounds) Cat 1 / NBL (under BMI 30)										C-9 Aircraft (under BMI 35)						
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
2101 NASA Road 1
Houston, Texas 77058-3696



Reply to Attn of: SD37-202

Date:

TO: FAA Physiological Training Students
FROM: SD37-Manager, Human Test Support Group

SUBJ: **Physiological Training Class Information**
REF: JSCMD 1830.2 Physiological Training Program

Course Information

You are scheduled for physiological training: STARTING @ 0745

1. **Location:** Sonny Carter Training Facility(SCTF), 13000 Space Center Blvd., entrance C, the Neutral Buoyancy Laboratory (NBL).
2. **Badges / Access Restrictions for FAA:** Human Test Support Group (HTSG) will make badging arrangements for U.S. Citizens. You must bring 2(two) valid forms of I.D.

ALL NON-NASA personnel will be issued a temporary badge. SCTF has been designated a NASA Restricted Area and now has a guarded gate. Upon arrival, please check with the gate guard for badging and vehicle pass procedures. Your badge will be waiting at the badging workstation which opens at **0730**. Although HTSG is located in the same facility as the badging workstation, allow ample time to pick up your badge and arrive for training by **0745**. The badging workstation opens at **0730**.

For Security and safety, students are restricted to the HTSG classroom, the lavatory, areas in and around the chamber, and pathways in-between.

FAA Course: 0745-1700 with chamber flight in the afternoon. Please make your travel arrangements accordingly. FAA students must complete and return the "APPLICATION AND AGREEMENT FOR PHYSIOLOGICAL TRAINING" Medical History Statement prior to arriving for training. The application must be faxed to the local FAA FSDO office to **FAX: (281) 929-7059** your Medical History Statement to (281)-792-5731 prior to attending your scheduled training

3. **Chamber Flight Information:**

- * Must have a current **flight physical or equivalent** and be within NASA BMI standards.
- * May not have donated blood within 72 hours of chamber flight.
- * May not have a beard that interferes with mask fit.
- * May not have SCUBA dived in the past 48 hours.
- * Try to be well rested and hydrated.
- * Be in compliance with the four items listed on the Medical History Statement (attachment 1).

5. **Post Chamber Flight Restrictions:**

- * No flying as a crewmember for 12 hours.
- * No physical exercise.
- * No alcoholic beverages.

6. **Confirmation of Training:**

Training slots are limited. Please confirm your attendance by noon of the Friday preceding your training date, or you may lose your training slot. If you are unable to attend this training, please call or e-mail as soon as possible. Thank you for your assistance.

Phone: 281.792.5724 (Mike Fox)

Phone: 281.792.5722 (Dave Carraway)

Phone: 281.792.5754 (Javier Roque)

E-Mail: mike.fox1@jsc.nasa.gov

E-Mail: david.w.carraway1@jsc.nasa.gov

E-Mail: javier.r.roque1@jsc.nasa.gov

LATE ARRIVALS WILL NOT BE PERMITTED IN CLASS

APPLICATION MUST BE COMPLETED, SIGNED AND RETURNED TO HOUSTON FSDO BEFORE TRAINING IS APPROVED/ MEDICAL HISTORY STATEMENT MUST BE COMPLETED, SIGNED AND RETURNED TO HUMAN TEST SUPPORT GROUP BEFORE TRAINING IS APPROVED

MAIL OR FAX THIS PAGE OF THE APPLICATION TO:

Federal Aviation Administration
HOUSTON FLIGHT STANDARDS DISTRICT OFFICE
12000 Aerospace Ave., Suite 400, Houston, TX 77034-5576
ATTENTION: FAAS Team Program Manager
(281) 929-7000, FAX: (281) 929-7059

**APPLICATION AND AGREEMENT FOR PHYSIOLOGICAL TRAINING
(Please Print Clearly - Please Fill Out Completely)**

NAME (Last, First, M.I.): _____

ADDRESS (Street): _____

(City and State): _____ **(Zip):** _____

TELEPHONE NUMBER (Residence): () _____ **(Work):** () _____

DATE OF FAA MEDICAL CERTIFICATE: _____/_____/_____

CERTIFICATE NUMBER: _____

CHECK HERE IF REQUESTING CLASSROOM (“GROUND SCHOOL”) ONLY _____

Please bring proper identification at time of training

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**TRAINING LOCATION WILL BE: NASA-SONNY CARTER TRAINING FACILITY
(Adjacent to the Boeing Building, 13100 Space Center Blvd.)**

CONSENT FOR RELEASE OF APPLICATION DATA AND ASSUMPTION OF RISK

Any data on this Application and Agreement may be released by the Federal Aviation Administration to any Federal Agency, department, or military service. In consideration of the approval of this application of the receiving of the proposed physiological training, and of the professional, aeronautical, and personal benefits to be gained there from, I voluntarily assume all risk of accident or damage to my person and property, and do hereby for myself, and my heirs, executors and administrator, release the United States and its executive offices and agencies (together with its officers, agents and employees) from all claims, demands, and causes of action found in personal harm occurring during the physiological training. And in addition I hereby authorize any medical treatment necessary for conditions that may arise in connection with or as a result of this training and understand that I am responsible for payment for any and all services required for said treatment.

Signature of Applicant (Applicant must be 18 years of age or older) (Date) _____/_____/_____

No Cover Sheet Required For FAX

Medical History Statement

To be completed by individuals who will be participating in the chamber flight

Human Test Support Group must be in receipt of this Medical History Statement prior to attendance for any scheduled physiological training course. Failure to comply may preclude completion of training on scheduled class date.

Complete the following Medical History Statement and forward it by fax or mail to:

Human Test Support Group
13000 Space Center Blvd
Houston, TX 77059-3594
Mail Code SD-37
ATTN: Physiological Training Officer

FAX: 281.792.5731
Phone: 281.792.5722, 5724, 5754

Have you had any medical problems, surgeries, or injuries since your last flight physical? Yes No

Have you had LASIK or any other eye surgery in the past 6 months? Yes No

Are you taking any prescription medications, over-the-counter medications (Sudafed, Advil, Aspirin, etc.), or health related products other than vitamins or contraceptives? Yes No

Females Only: Are you pregnant? Yes No

PLEASE explain any "YES" answers:

Print: Last name, First name, MI

Date scheduled for training

Email

Phone

Signature

Date